

In the Claims

Please amend claims 1 and 9 and cancel claims 7, 8, 22 and 26 as follows:

1 1. (currently amended) An echo/near-end-crosstalk cancellation system for a bi-
2 directional data communications system comprising:

3 a first finite impulse response filter configured to filter a first portion of a digital
4 representation of a data signal comprising data, low amplitude echo/near-end-crosstalk
5 components and high amplitude echo/near-end-crosstalk components, the first portion
6 comprising bits representing the low amplitude echo/near-end-crosstalk components of the data
7 signal and least significant bits of the high amplitude echo/near-end-crosstalk components of the
8 data signal;

9 a second finite impulse response filter coupled to the first finite impulse response filter,
10 said second finite impulse response filter configured to filter a second portion of said digital
11 representation of the data signal, said second portion comprising most significant bits of said
12 high amplitude echo/near-end-crosstalk components;

13 a data partitioning means for partitioning [[a]] said digital representation of the data
14 signal comprising echo/near end crosstalk components into said first and second portions such
15 that [[a]] said first portion of a partitioned data signal is processed by the first finite impulse
16 response filter to provide a first filter output value, and [[a]] said second portion of the
17 partitioned data signal is processed by the second finite impulse response filter to provide a
18 second filter output value; and

19 a combination means for summing the output values from the first and second filters to
20 produce a digital representation of the low and high amplitude echo/near-end-crosstalk
21 components, and subtracting the outputs of the first and second finite impulse response filters
22 said digital representation of the low and high amplitude echo/near-end-crosstalk components
23 from the digital representation of the data signal to provide echo/near-end-crosstalk cancellation.

1 2. (previously presented) The system according to claim 1, further comprising a
2 control means for adjusting the first and second filter output values.

1 3. (previously presented) The system according to claim 1, wherein the first finite
2 impulse response filter and the second finite impulse response filter are each implemented as a
3 separate integrated circuit.

1 4. (previously presented) The system according to claim 1, wherein the first finite
2 impulse response filter is comprised of a plurality of filter elements.

1 5. (previously presented) The system according to claim 1, wherein the second finite
2 impulse response filter is comprised of a plurality of filter elements.

1 6. (previously presented) The system according to claim 1, wherein the data
2 partitioning means comprises a plurality of conductors for conducting the first portion of the data
3 signal to the first finite impulse response filter and the second portion of the data signal to the
4 second finite impulse response filter.

1 7. (cancelled)

1 8. (cancelled)

1 9. (currently amended) The system according to claim [[8]] 6, wherein the second
2 portion of the partitioned data signal negates a second portion of an echo/near-end-crosstalk
3 signal generated as a result of the transmission of the data signal, wherein the second portion of
4 the echo/near-end-crosstalk signal is not included in the first portion.

1 10. (previously presented) The system according to claim 1, wherein the first and
2 second finite impulse response filters are adaptive type filters.

1 11. (previously presented) The system according to claim 1, wherein the first and
2 second finite impulse response filters are non-adaptive type filters.

1 12. (previously presented) The system according to claim 1, wherein the first and
2 second finite impulse response filters are digital filters.

1 13. (previously presented) The system according to claim 1, wherein both the first and
2 second finite impulse response filters are configured identically in direct form.

1 14. (previously presented) The system according to claim 1, wherein both the first and
2 second finite impulse response filters are configured identically in transpose form.

1 15. (previously presented) The system according to claim 1, wherein the first and
2 second finite impulse response filters are configured differently, with one being in direct form
3 and the other being in transpose form.

1 16. (previously presented) The system according to claim 2, wherein the control
2 means for adjusting the first and second filter output values comprises a multi-tap delay line
3 including a plurality of taps, wherein at least one programmable delay line is interposed between
4 two of the plurality of taps.

1 17. (previously presented) The system according to claim 2, wherein the control
2 means for adjusting each of the first and second filter output values comprises at least one
3 holding register in each finite impulse response filter for implementing a unique one of a
4 plurality of adaptive delays.

1 18. (previously presented) The system according to claim 1, wherein the first and
2 second finite impulse response filters filter the data signal using either fixed or floating point
3 numbers.

1 19. (original) A method for partitioning data words in an echo/near-end-crosstalk
2 cancellation circuit for a communications system, comprising the steps of:

3 determining a first bit resolution from a predetermined number of a plurality of
4 echo/near-end-crosstalk (E/N) signals having a lowest amplitude;

5 determining a second bit resolution by subtracting the first bit resolution from a bit
6 resolution of a single signal from a plurality of E/N signals having a highest amplitude; and

7 partitioning the plurality of E/N signals such that a first portion is processed by a first FIR
8 filter having a data path identical to the first bit resolution, and a second portion comprised of
9 bits having a data size exceeding the bit width of the first FIR filter is processed by a second FIR
10 filter having a data path identical to the second bit resolution.

1 20. (original) The method according to claim 19, wherein the predetermined number
2 of signals comprises a majority of the plurality of E/N signals.

1 21. (original) The method according to claim 20, wherein the predetermined number
2 of signals comprises three quarters of the plurality of E/N signals.

1 22. (cancelled)

1 23. (previously presented) A method for partitioning data words in an echo/near-end-
2 crosstalk cancellation circuit for a bidirectional communications system, comprising the steps of:

3 determining a first bit resolution from a predetermined number of a plurality of
4 echo/near-end-crosstalk signals, said first bit resolution comprising a majority of lowest
5 amplitude echo/near-end crosstalk signals;

6 determining a second bit resolution by subtracting the first bit resolution from a bit
7 resolution of a single signal of said plurality of echo/near-end-crosstalk signals having a highest
8 amplitude; and

9 partitioning the plurality of echo/near-end-crosstalk signals such that a first portion is
10 processed by a first finite impulse response filter having a data path identical to the first bit
11 resolution, and a second portion is processed by a second finite impulse response filter having a
12 data path identical to the second bit resolution.

1 24. (previously presented) The method according to claim 23, wherein the
2 predetermined number of signals comprises a majority of the plurality of echo/near-end-crosstalk
3 signals.

1 25. (previously presented) The method according to claim 24, wherein the
2 predetermined number of signals comprises three quarters of the plurality of echo/near-end-
3 crosstalk signals.

1 26. (cancelled)